

DIRECT CARBON FUEL CELL WORKSHOP



PITTSBURGH, PENNSYLVANIA
JULY 30, 2003



Agenda - Morning

- 8:00 am **Registration and Continental Breakfast**
- 8:30 am Welcome
Mark C. Williams, U.S. Department of Energy, National Energy Technology Laboratory
- 8:40 am Workshop Overview
Ron Wolk, Wolk Integrated Technical Services

CARBON ANODE ELECTROCHEMISTRY

- 8:50 am Reactions of the Carbon Anode in Molten Carbonate Electrolyte
John F. Cooper, Lawrence Livermore National Laboratory
- 9:10 am Electrochemistry of Direct Carbon Fuel Cell Based on Metal Hydroxide Electrolyte
Strahinja Zecevic, SARA
- 9:30 am Using the Full Exergetic Quality of Solid Fuels: A EU Research Proposal
Kas Hemmes, Delft University
- 9:50 am Anodic Carbon Monoxide in Molten Carbonate: Why Molecular Mechanism May Be Less Relevant Than Wetting Behavior
J. Robert Selman, Illinois Institute of Technology
- 10:10 am **Break**

CARBON CONVERSION FUEL CELLS

- 10:30 am Design, Efficiency and Materials for Carbon/Air Fuel Cells
John F. Cooper, Lawrence Livermore National Laboratory
- 10:50 am SARA's Direct Carbon Fuel Cell Program
Edward M. Patton, SARA
- 11:10 am Carbonate Fuel Cell Operating on Gaseous Fuels
Hans Maru, Fuel Cell Energy
- 11:30 am Direct Carbon Conversion
Thomas Tao, CellTech Power, Inc.
- 11:50 am Diverting Carbon from the SOFC Hydrocarbon Fuel Stream into a DCFC Path Through Selective Diffusion and Precipitation
Lane C. Wilson, U.S. Department of Energy, National Energy Technology Laboratory

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Agenda - Afternoon

12:10 pm **Group Lunch**

COAL PREPROCESSING PRIOR TO INTRODUCTION INTO THE FUEL CELL

- 1:10 pm Beneficiation of Ultra-Fine Ultra-Clean Coal
B.K. Parekh, University of Kentucky
- 1:30 pm Low Severity Extraction of Coal for Production of Carbon Fuel for Direct Carbon Fuel Cells
Adam J. Berkovich, University of Kentucky
- 1:50 pm Coal Preprocessing Via Solvent Extraction
John W. Zondlo, West Virginia University
- 2:10 pm CENfuel - A Low-Cost Source for High-Quality Carbonaceous Material
Robert C. Bellemare, Utilipoint
- 2:30 pm **Break**

POTENTIAL MARKET APPLICATIONS FOR DIRECT CARBON FUEL CELLS

- 2:50 pm The Role of Coal in Our Energy Future
John M. Schneider, American Electric Power
- 3:10 pm An Innovative Highly Efficient Combined Cycle Fossil and Biomass Fuel Power Generation and Hydrogen Production Plant with Zero CO₂ Emission
Meyer Steinberg, Brookhaven National Laboratory
- 3:30 pm Identification of Near-Term R&D Needs
Workshop Participants
- 4:30 pm **Adjourn**